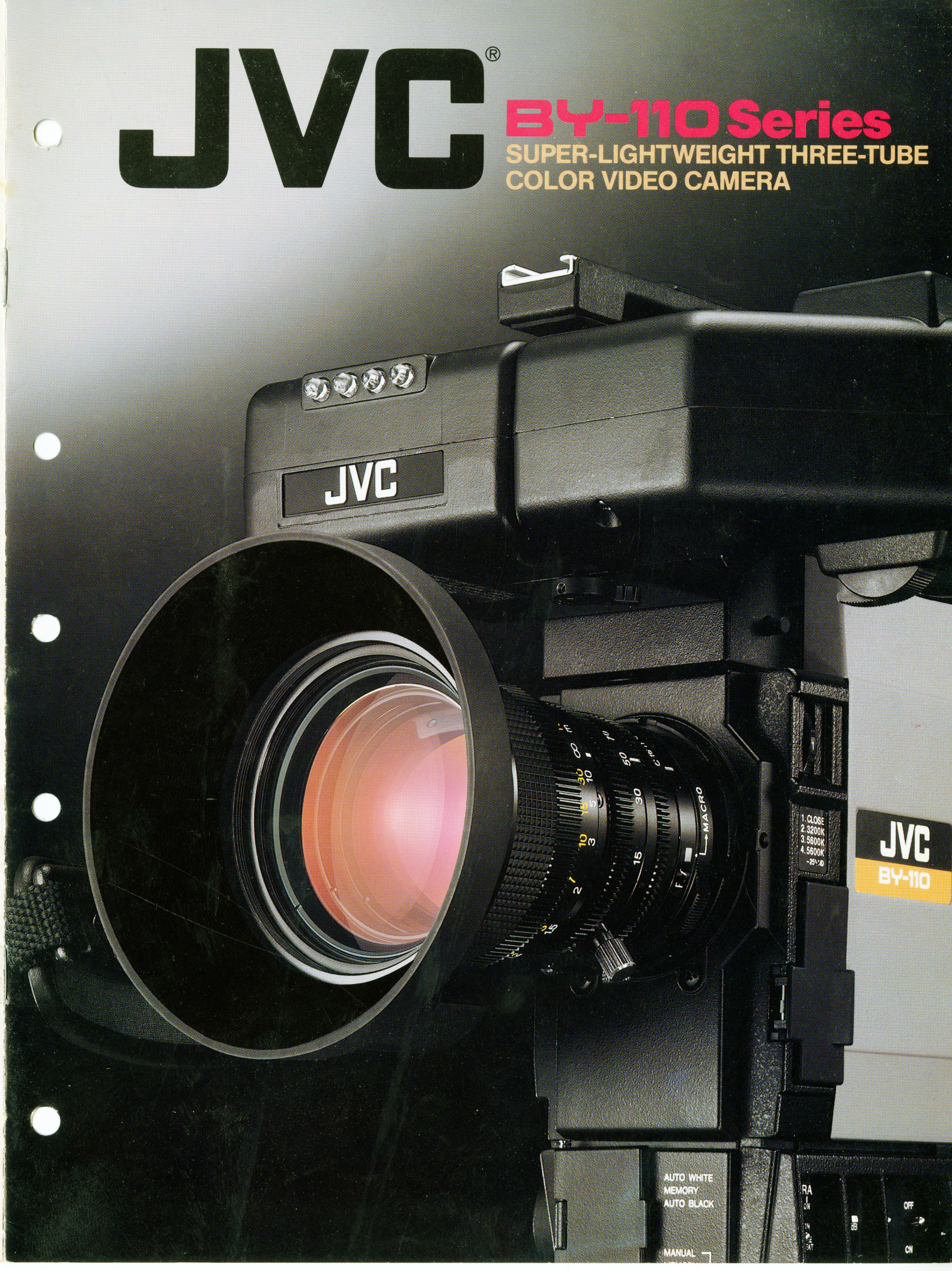
JVC®

BY-110 Series

SUPER-LIGHTWEIGHT THREE-TUBE COLOR VIDEO CAMERA



A compact, lightweight camera delivering results that are truly professional

Light and compact, the BY-110U is a revolution in professional video. Technologies originally developed for the best-selling KY-series of three-tube cameras ensure uncompromising picture quality while a wide range of professional features make it ideal for almost any application in production and institutional video. Two packages are available consisting of the camera head, built-in camera control unit, 1.5" viewfinder and 10X or 16X servo zoom lenses, all in a convenient carrying case; the BY-110U camera is also available without these accessories.

1/2" prism optical system

Newly developed for use with 1/2" pickup tubes, the prism optical system gives the BY-110U high sensitivity and excellent color reproduction.
A sealed housing improves resistance to vibrations and eliminates contamination by dust.

S-M 1/2" Saticon* tubes

The newly-designed professional-quality 1/2" Saticon pickup tubes have a high operating voltage for a resolution of 600 lines and a video S/N of 54 dB. Their S-M (electrostatic focus/electro-magnetic deflection) system has stability that's been proven in the field.

10X and 16X power zoom lenses: HZ-110U, HZ-116U

Two specially developed power zoom lenses are offerred with the BY-110U; these compact macro-capable lenses have a maximum aperture of f/1.4 for an improved low-light performance while multi-coating gives higher resolution images and reduced flare.

New 1.5" viewfinder: VF-115U

The larger 1.5" viewfinder has been developed for ENG and EFP applications. Easier to operate thanks to its new design, with a large flip-up eyecup, diopter ring, peaking switch, switchable tally lamps, etc., it snaps directly on the camera head (like the microphone), eliminating the need for connection cables.

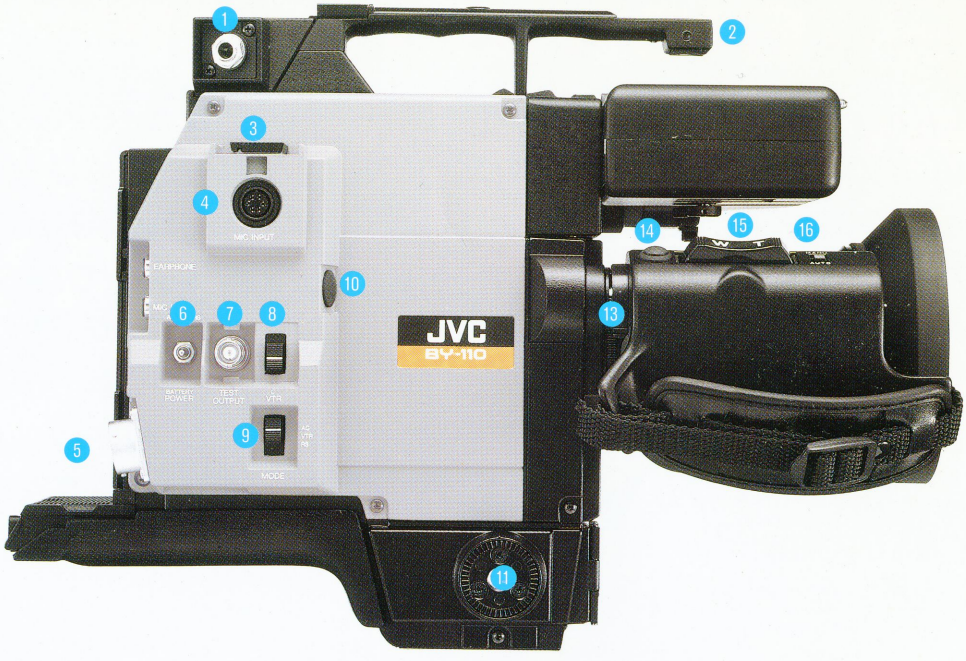
Excellent operability

For ease of operation, the controls are arranged conveniently; the wide range of automated functions include the auto-shift registration circuit, the auto white/black balance circuits, the auto beam control (ABC) circuit, the auto black level (ABL) circuit, the auto iris circuit and the auto iris close circuit.

Wide applicability

The BY-110U accepts an external genlock signal for use in systems with other cameras, while a full range of options are available for studio applications including a remote control unit, a 4" viewfinder and zoom and focus control units.

*Registered trademark



1. **Intercom headset jack**
2. **Accessory shoe**
3. **Microphone shoe** (for the optional M-K50U)
4. **Microphone connector** (6-pin, for M-K50U)
5. **14-pin cable connector**
6. **Power supply select switch**
7. **Test signal output connector**
8. **VCR triggering mode switch**
9. **Cable operation mode select switch**
10. **Remote control mode switch** (for the optional RS-110U)
11. **Chest rest lock** (for the optional KA-111U)
12. **Tripod mount holes** (1/4", 3/8")
13. **VCR start/stop switch**
14. **Video signal return switch**
15. **Zoom servo lever**
16. **Iris mode switch**
17. **Zooming mode switch**

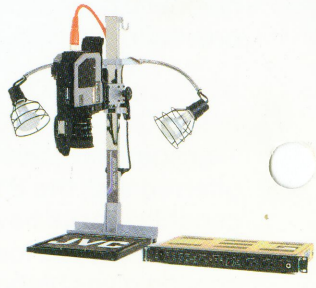
Flexibility that you can utilize

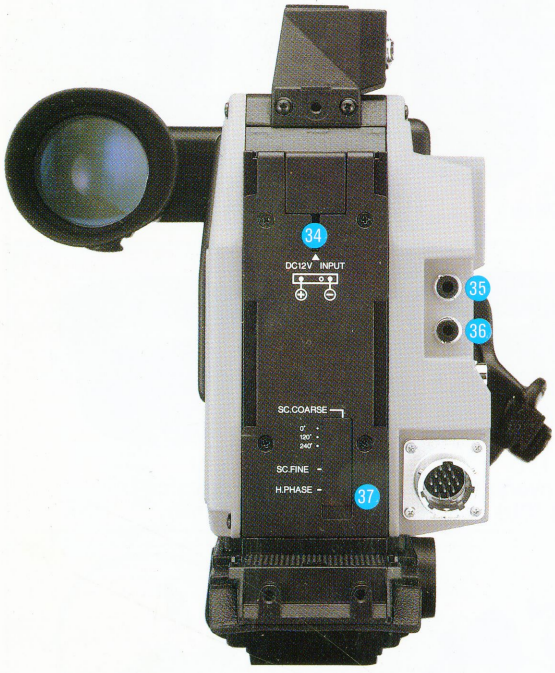
Portable field application (Photo shows BY-110UL10)

Teleconferencing

With a portable recorder

Image-processing input





18 **Auto white/black balance switch**
19 **Auto-shift registration switch**
20 **Tally lamp**
21 **Power zoom lens** (photo: HZ-110U)
22 **1.5" viewfinder** (VF-115U)
23 **Tally on-off switch**
24 **Peaking on-off switch**
25 **Contrast control**
26 **Brightness control**
27 **ND and color filter turret**
28 **4" viewfinder shoe** (for the optional VF-400U)
29 **Viewfinder/test signal select switches**
30 **Operation mode switch**
31 **Sensitivity select switch**
32 **White balance mode switch**
33 **Color bar switch**
34 **Battery holder** (for the optional DC-C11U)
35 **Earphone jack**
36 **Microphone input jack** (1/8" mini jack)
37 **Hue/phase controls**

Microscope application

Studio production

Simplified telecine system

Multiple telecine system

ACCESSORIES

RS-110U Remote Control Unit

Rear Panel

The RS-110U fits in a standard EIA rack and is specially designed for use in studio systems with two or more cameras. Color matching between cameras and other control functions are available. R, G and B signals can be output independently (except during adjustment of R/B gain and master black level).

HZ-110MDU
Motorized 10X Zoom Lens

RM-110MDU
Remote Control Unit
(for HZ-110MDU)

TE-1000U
Telecine Attachment

HZ-M110U
Microscope Attachment

VF-400U
4" Viewfinder

AA-C11U
AC Power Adapter

DC-C11U
Battery Pack

KA-130U
VTR Adapter (for BR-1600)

HZ-CA11U
C-Mount Lens Adapter

HZ-NK11U
Nikon Lens Adapter

HZ-WCL11U
Wide Conversion Lens
(for HZ-110U)

HZ-TCL11U
Tele Conversion Lens
(for HZ-110U)

KA-M50U
Handgrip (for M-K50U)

KA-D50U
Battery
Adapter (for DC-C50U)

HZ-ZS11U
Zoom Servo Unit
(for HZ-110U)

HZ-FM11U
Focus Manual Unit
(for HZ-110U)

HZ-ZS12U
Zoom Servo Unit
(for HZ-116U)

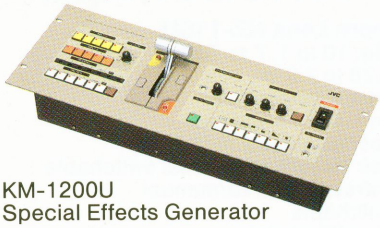
HZ-ZM12U
Zoom Manual Unit
(for HZ-116U)

HZ-FM12U
Focus Manual Unit
(for HZ-116U)

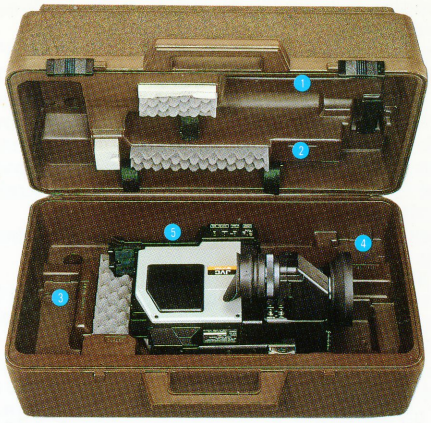
HZ-FS12U
Focus Servo Unit
(for HZ-116U)

TE-3000U
Telecine Attachment
(multiplexer type)

MI-1200U
Audio Mixer



KM-1200U
Special Effects Generator



CB-110BU Carrying Case with spaces for ❶ M-K50U ❷ KA-110XU ❸ AA-C11U ❹ DC-C11U ❺ VTR cable

CABLES

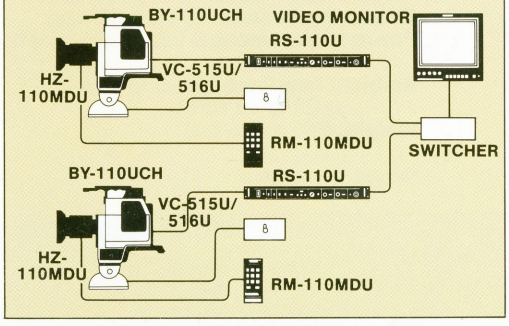
Model	Length	Pins	Connection between	
VC-511CU-2	2 m	14P-10P	BY-110UCH	10P VTR
VC-512BU	4 m	14P-14P	BY-110UCH	14P VTR
VC-512BU-2	2 m	14P-14P	BY-110UCH	14P VTR
VC-582BU	10 m	10P-10P	VC-511CU-2	10P VTR
VC-589BU	10 m	14P-14P	VC-512BU/BU-2	14P VTR
VC-515U	20 m	14P-14P	BY-110UCH	RS-110U
VC-516U	20 m	14P-14P	VC-515	RS-110U

PACKAGES

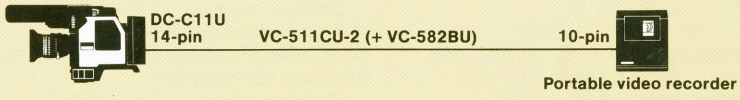
	BY-110UL16B	BY-110UL10B
BY-110UCH Color Video Camera	○	○
HZ-116U	○	–
HZ-110U	–	○
VF-115U	○	○
CB-110BU	○	○

SYSTEM CONNECTIONS

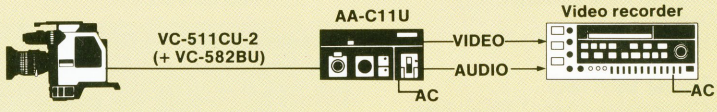
HZ-110MDU CONNECTION



Battery operation with a portable video recorder

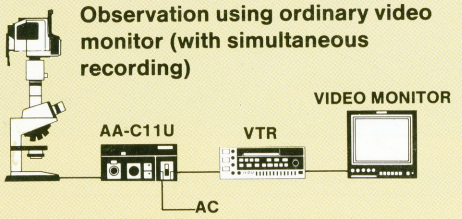


AC operation



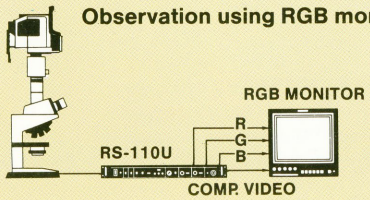
HZ-M110 CONNECTION A

Observation using ordinary video monitor (with simultaneous recording)

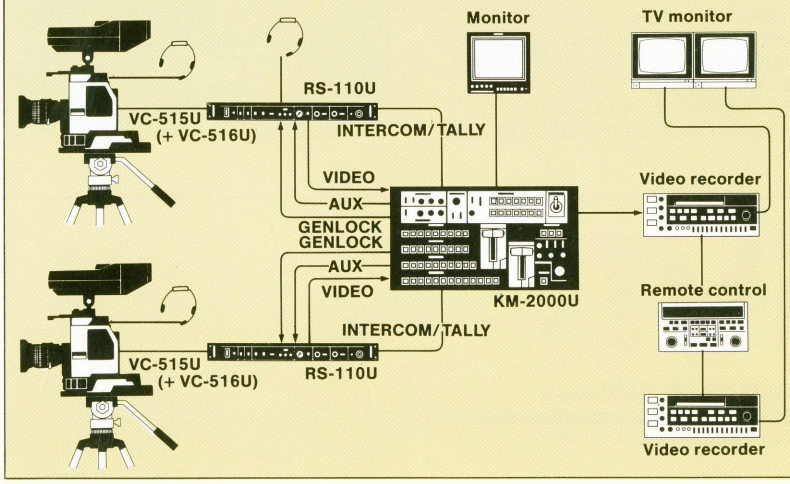


HZ-M110 CONNECTION B

Observation using RGB monitor



Studio system using two cameras



SPECIFICATIONS

■ Color Video Camera BY-110UCH

Optical system: f/1.4 three-tube RGB prism system
Focusing/deflection system: Electrostatic focus/electromagnetic deflection
Pickup tubes: 1/2" Saticon* (x 3)
Encoder: NTSC type (R-Y, B-Y)
Synchronizing system
- **Internal:** Built-in SSG
- **External:** Composite video or black burst (via AC power adapter or remote control unit)

Lens mount: Special mount
Sensitivity: f/2.8 at 2000 lux (186 fc)
Minimum illumination: f/1.4, 65 lux (6 fc) (+12 dB switch ON, 70 % video output level)
S/N: 54 dB (Contour correction OFF, Gamma 1, Bandwidth 4.2 MHz)
Horizontal resolution: 600 lines (G ch center)
Registration
- **Zone 1:** Within 0.1 % (circle 80 % of picture height)
- **Zone 2:** Within 0.4 % (circle of picture width)
- **Zone 3:** Within 0.8 % (area outside the Zone 2)

Input signals
- **Return video signal:** VBS, 1.0 Vp-p, 75 Ω
- **Genlock signal:** Composite video (VBS, 1.0 Vp-p, 75 Ω) or black burst (BB, 0.43 Vp-p, 75 Ω)
- **Microphone:** –60 dBm, 600 Ω unbalanced

Output signals
- **Composite video signal:** 1.0 Vp-p, 75 Ω (from 14-pin connector)
- **Test signal:** R, G, B, R-G, B-G, ENC
- **Audio signal:** –20 dB unbalanced
- **Audio monitor signal:** From video recorder used
- **Video recorder control signal:** Contact or 4 V supply (switchable)

Contour correction
- **Horizontal:** Dual-edged
- **Vertical:** 1 H, single-edged

Optical filters: Closed, 3200 K, 5600 K, 5600 K + 25 % ND
Gain boost: 0 dB, +6 dB, +12 dB
Power requirement: +12 V DC (10.5 to 15V), 1.05 A (camera head only)
Ambient temperature: –5 to +45°C (23 to 113°F)
Weight: 2.4 kg (5.3 lbs)
Dimensions: 104.5(W) x 254.5(H) x 276(D) mm (4-1/8" x 10-1/16" x 10-7/8")

■ 1.5" Viewfinder VF-115U

Input signal: Composite video, 1 Vp-p, high impedance
CRT: 38 mm (1.5") diagonal
Resolution: 400 lines
Provided circuits: Top tally lamp (ON-OFF switchable), LOW-L (low light)/BATT (battery) warning (Red), REC (tally)/Peaking switch
Power consumption: 12 V DC, 300 mA (provided from Color Video Camera)
Ambient temperature: –20 to 50°C (–4 to +122°F)
Weight: 720 g (1.6 lbs)

■ 4" Viewfinder VF-400U

CRT: 102 mm (4 inches) diagonal
Resolution: More than 500 lines
Provided circuits: Tally lamps
Pan/tilt mechanisms: Provided
Power requirement: 12 V DC, 800 mA
Ambient temperature: –20 to +50°C (–4 to +122°F)
Dimensions: 114(W) x 97(H) x 245(D) mm (4-1/2" x 3-7/8" x 9-3/4") w/o hood

■ 10X Zoom Lens HZ-110U

Zoom ratio: 10 to 1, 7 to 70 mm (0.28 to 2.8 in.)
Max. aperture ratio: f/1.4
Iris range: 1.4 to 16, closed
Min. object distance: 1 m (3.25 ft)
Iris control: Motorized/manual switchable
Zoom control: DC servo/manual switchable
Mount: Special mount
Filter diameter: 67 mm (2-3/4") without hood (P = 0.75), 72 mm (2-7/8") with hood (P = 0.75)
Macro: Built-in (close-up 35 mm/1.38 in.)
Weight: 900 g (1.99 lbs) without hood
Dimensions: 147(W) x 110(H) x 165(D) mm (5-7/8" x 4-3/8" x 6-1/2")

■ 16X Zoom Lens HZ-116U

Zoom ratio: 16 to 1, 7 to 112 mm (0.28 to 4.4 in.)
Max. aperture ratio: f/1.4 (7 to 92 mm) or f/1.7 (112 mm)
Iris range: f/1.4 to f/16, closed
Min. object distance: 0.95 m (3.12 ft)
Macro: Provided (70 mm/2.75 in.)
Mount: Special mount
Filter diameter: 77 mm (3-1/32"), P = 0.75
Weight: 1.4 kg (3.1 lbs) w/o hood

■ AC Power Adapter AA-C11U

Power input: 120 V AC, 60 Hz
Output
- **Camera mode:** +12 V DC, 2.2 A
- **Charge mode:** +12 to +16 V DC, 2.2 A

Power consumption: 58 W
Compatible battery pack: DC-C11U
Ambient temperature
- **Camera mode:** –20 to +50°C (–4 to +122°F)
- **Charge mode:** +10 to +35°C (+50 to +95°F)

Charge indication: QUICK/TRICKLE
Charge time: Approx. 90 min. (Quick charge)
Weight: 1.8 kg (4.0 lbs)
Dimensions: 170(W) x 64(H) x 230(D) mm (6-3/4" x 2-5/8" x 9-1/8")

■ Battery Pack DC-C11U

Type: Ni-Cd battery
Output: +12 V DC, 2.2 Ah
Overcharge sensor: Built-in
Weight: 1.0 kg (2.2 lbs)
Dimensions: 68(W) x 142(H) x 76.5(D) mm (2-3/4" x 5-5/8" x 3-1/16")

■ Remote Control Unit RS-110U

Output signals
- **Composite video signals:** 1.0 Vp-p, 75 Ω, x 2
- **R/G/B signals:** 0.7 Vp-p, 75 Ω, x 1 each (when RGB select switch in ON)
- **Intercom signal:** 2-wire system, line –20 dBm, 600 Ω balanced

Input signals
- **Genlock signal:** VBS 1.0 Vp-p, 75 Ω or BB 0.43 Vp-p, 75 Ω (loop-through output)
- **AUX signal:** VBS or VS, 1.0 Vp-p, 75 Ω (loop-through output)
- **Intercom signal:** 2-wire system, line –20 dBm, 600 Ω balanced
- **Tally signal:** Make-contact or power supply (5 to 24 V DC, or 6 V AC)

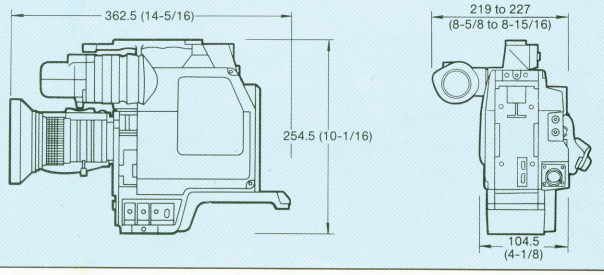
Power requirement: 120 V AC, 50/60 Hz
Power consumption: 65 W (including camera and viewfinder), 10 W (RS-110U only)
Ambient temperature: –10 to +45°C (+14 to 113°F)
Weight: 4.4 kg (9.7 lbs)
Dimensions: 483(W) x 44(H) x 256(D) mm (19" x 1-3/4" x 10-1/8")

■ Microphone M-K50U

Type: Electret condenser
Sensitivity: –52 dB
S/N ratio: 50 dB
Frequency response: 70 to 16,000 Hz
Output impedance: 600 Ω balanced
Power requirement: 9 V DC (provided from the camera)
Ambient temperature: –5 to +45°C (+23 to +113°F)
Weight: 270 g (0.6 lbs)

*Registered trademark

Dimensions: (BY-110UL10B) **Unit: mm** (inch)



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